THE INVENTION CLAIMED IS

1. A laser constructed to control amplified spontaneous emission and/or parasitic light, comprising:

a laser gain medium having certain polished surfaces that are used to transport pump light by internal reflection throughout said laser gain medium,

a light source directing laser pump light into said laser gain medium,

a layered coating on at least certain of said polished surfaces that are used to transport pump light by internal reflection of said laser gain medium,

said layered coating having a reflective inner material and an absorptive or scattering outside material and configured to substantially reflect the pump light that strikes the coating so as to direct the pump light back into said laser gain medium, and substantially transmit amplified spontaneous emission and/or parasitic light that strikes the coating so as to let this light strike said outside material of said layered coating where it is either scattered or absorbed.

2. The laser of claim 1, wherein said absorptive or scattering outside material is a diffuse reflectance material such as powdered BaSO4, an absorbing film such as Ge, or a roughened surface to reduce the specular reflectivity.

3. The laser of claim 1, wherein said absorptive or scattering outside material is powdered BaSO4.

4. The laser of claim 1, wherein said absorptive or scattering outside material is powdered an absorbing film such as Ge.

5. The laser of claim 1, wherein said absorptive or scattering outside material is a roughened surface.

6. An end pumped laser, comprising:

a laser light source,

a laser gain element having smooth surfaces other than those through which the laser light is intended to enter or exit the gain element, and

an optical coating applied to said smooth surfaces wherein said smooth surfaces serve to substantially reflect pump light that is introduced into the sample and so keep the pump light confined within said laser gain medium,

said applied optical coating designed to preferentially transmit amplified spontaneous emission and parasitic light out of said laser gain element and into said optical coating, and

the outer surface of said optical coating designed to substantially scatter or absorb the radiation that reaches said surface so as to prevent it from re-entering the laser gain medium.

7. A method of producing a laser gain element for amplifying laser light, comprising:

providing a laser gain element with smooth surfaces other than those through which the laser light is intended to enter or exit the gain element,

coating said smooth surfaces with an optical coating wherein,

said smooth surfaces which are in contact with the applied optical coating serve to substantially reflect pump light that is introduced into the gain element and so keep pump light confined within the gain element and wherein said applied optical coating is designed to preferentially transmit amplified spontaneous emission and parasitic light out of the gain element and into the coating and the outer surface of the applied optical coating is designed to substantially scatter or absorb the radiation that reaches that surface so as to prevent it from re-entering the laser gain medium.

8. The laser method of claim 7, wherein said absorptive scattering outside material is a diffuse reflectance material such as powdered $BaSO_4$, an absorbing film such as Ge, or a roughened surface to reduce the specular reflectivity.